



# **POWRi National and West Midgets Specifications**

I. CAR APPEARANCE

- A. All cars must pass a technical inspection by the Director of Competition before being allowed to race.
- B. All cars must present a neat appearance to the Promoter and the crowd.
- C. Pit crews must be in a presentable condition.
- D. Each car will be required to have a number prominently painted on the nose and each side of the tail. Duplicate numbers at any track may require the alteration of the number by adding a number or letter to the car.
- E. After a number is assigned to a particular car and owner, it will remain with the owner until the end of the racing season.

II. MIDGET SPECIFICATIONS

- A. Design and Construction: All phases of design and construction of any car are subject to the approval of the Technical Committee. The Stewards and Technical Committee may exclude any car, design, or construction which they have deemed dangerous.
- B. Inspection: An inspection shall be performed by a member of the POWRi Technical Committee at any event during the season.
- C. Car Size Limits: The wheelbase must be at least 66 inches, but not more than 76 inches.
- D. Car Construction
  - 1. All cars must be of the open wheel, open cockpit style.
  - 2. The engine must be covered with a cowling or hood and secured in place. The hood or cowling need not enclose the sides of the engine.
  - 3. The car must have a floorboard or under pan (extend from firewall to the front of the seat) that provides adequate protection to the Driver.
  - 4. Radiator catch tanks and under pan diapers may be required if warranted by track conditions.
  - 5. The cockpit opening must be located directly behind the engine compartment.
  - 6. Seats: No fiberglass, carbon fiber, or plastic seats will be allowed. A minimum of 4 mounts will be used (5/16 bolts with 2" washers). All seats must be of high back style.

7. Weight: All cars will weigh a minimum of 1035 pounds; including water, oil, fuel and the driver. Cars may be weighed prior to and/or following any event. Cars weighed at the completion of an event may not add fuel or ballast to satisfy the minimum weight requirement.
8. Roll Cage: All cars must be equipped with a roll cage that cannot encroach upon the imaginary cylinder extending upward from the cockpit opening. The roll cage must be secured and attached to a strong component of the car and adequately braced fore and aft to secure in an upright position. The roll cage should extend 2" above the top of the Driver's helmet when the Driver is sitting in an upright position. It is recommended that on all new cars, the roll cage should extend 4" above the top of the Driver's helmet. The normal height is 36" measured on a line equivalent to the Driver's spine when seated in the car. All cars constructed after January 1, 1997, should have roll cages and uprights constructed of 4130 1-3/8" 0.095 minimum specifications. All roll bars and/or cages must be so designed as to permit the lifting of the car in case of an accident. SFI roll cage padding highly recommended.
9. Water / Oil Coolers: No water or oil coolers are to be placed above or besides the cockpit opening.
10. Chassis Protrusions: Sharp chassis protrusions (grease fittings, cotter keys, etc.) must not be located in close proximity to the tires.
11. Bumpers and Nerf Bars: Cars must be equipped with adequate bumpers that are securely fastened to the structural components of the car. No titanium rear bumpers are allowed.
12. Axles: Front axles constructed of aluminum or titanium will not be permitted.
13. Steering Mechanism
  - a. The steering mechanism should be in accordance with sound engineering principles and subject to inspection. A quick release type steering wheel is required. No pin type quick release or plastic quick release will be allowed.
  - b. All highly stressed steering parts must be made of SAE 4130 steel or an alloy, specified by the manufacturer of the alloy as equivalent in physical properties. All such parts must be heat treated (including stress relieving, normalizing, annealing, and hardening when applicable) after forming and/or welding as recommended by the manufacturer of the alloy being used.
  - c. Parts may not be joined by brazing, soldering, or by dissimilar metals.

- d. All steering parts that are electroplated should be oven-baked at a temperature of 375 degrees Fahrenheit, plus or minus 25 degrees, for a period of not less than 3 hours after plating.
- e. Shot pining is recommended for all highly stressed parts. Authorized facilities should be used.
- f. Air foils, wings, spoilers, or other aerodynamic appendages will not be permitted. The Director of Competition may have any panel or part removed, which is his/her opinion is not within the spirit or intent of this rule.

14. Brakes: Cars must be equipped with suitable brakes.

15. Tires and Wheels

- a. Hoosier tires are required on all four corners; right rear must be an SP 2, 3, or 4. Left rear must be a D-12 or harder.
- b. Tire measurement: Maximum tire measurement will be 12", measured from outside wall to outside wall except for the right rear tire; which will have a maximum measurement of 14" measured from outside wall to outside wall.
- c. Wheels: The rim diameter must be 12" or 13". The rim width shall not exceed 8" except for the right rear, which may be a maximum of 10". Cars powered by four cylinder horizontally-opposed, two valves per cylinder, intake and exhaust valves in-line and on the same axis, may use a right rear wheel with a maximum width of 12".
- d. All balancing lugs must be securely fastened.
- e. Rim locks are recommended only if the legal wheel width is maintained.
- f. Bead locks are legal.
- g. Tire Prep
  - i. The altering of any tire compound, by any means will not be permitted. Chemical alteration of the tread carcass and/or tread compound, such as tire 'soaking' and/or the introduction of tread 'softener' and/or physical defacement (removal, altering and/or covering) of tire sidewall markings in any manner will not be permitted. If any competitor is found to have altered their tires any penalty deemed appropriate by POWRi Series Officials may be issued.

- ii. Any tire may be inspected and/or analyzed for alteration at any time. This will consist of a process as determined by the independent laboratory that performs the analysis. The analysis process will require a sample shipment of the tire to the selected laboratory.
- iii. Additional race event(s) may be completed before a determination is made. If a penalty is issued, the event(s) that fell into the analysis time period while the tire(s) were being analyzed will be considered as part of the penalty time period.
- iv. Money won in an event may be held until the final determination is made by the independent laboratory.

16. Fuel System

- a. Fuel tanks must be constructed and supported in a manner that will ensure every possible precaution has been taken to avoid rupture or breakage.
- b. Fuel tanks should not be altered by cutting out the bottom of lower tanks. Carbon fiber fuel tanks will not be allowed.
- c. Each car should be equipped with an approved bladder fuel tank.
- d. Fuel tanks must be within the body's contour.
- e. A flush-type cap or a device approved by the Technical Committee is required on all exposed fuel caps.
- f. The fuel tank must have a check valve.
- g. Fuel systems must be equipped with a shut-off device located within easy reach of the Driver.
- h. Fuel is restricted to methanol or ethanol.
- i. All fuels are subject to testing at any time and any deviation or violation of these specifications will result in immediate disqualifications.

17. Firewall: An effective firewall of metal or approved fire-retardant material must be installed between the engine compartment and the cockpit. It must be as leak proof as possible.

18. Exhaust: Exhaust systems must be designed to create a minimum fire hazard and a minimum hazard to other competitors. Cars having exhaust pipes passing the cockpit in close proximity to the Driver must have raised metal pipes adjacent to the cockpit to afford protection to the Drivers and Mechanics.
19. Rear Bumpers: The car must be equipped with a rear bumper, which is securely fastened to the structural components of the car.
20. Mufflers: No carbon fiber mufflers will be allowed. Mufflers will only be mandatory at tracks that require them. Be prepared.
21. Ignition: Kill switch must work and be within easy reach to the Driver.
22. Starters / Clutch: Clutch must be rendered inoperative, but can be left on the car.
23. The use of carbon fiber or other composite material as a structural chassis component, torque tube, or as a suspension component is not allowed.
24. No titanium front and rear axles, steering and torsion arms, bumpers, or nerf bars will be allowed.
25. Seat Belts: The use of an approved seat belt with a quick opening clasp is mandatory. Both the fastening design and condition of the belt is subject to the inspection of the Technical Committee. Seat belts in use shall not exceed 2 years of age. Each belt must be the standard 3" minimum and include a submarine belt of suitable size.
26. Safety Harness: The use of double over-the-shoulder military shoulder straps is mandatory. The "Sam Brown" single shoulder side thrust harness may be used in conjunction with the military type shoulder strap, but not in place of this type shoulder assembly. The shoulder harness is subject to the inspection of the Technical Committee and shall be individual belt configuration. This means no "Y" type mounts. Safety harness in use shall not exceed 2 years in age.

E. Safety Equipment:

1. Helmets: All Drivers participating in POWRi sanctioned racing and/or speed events must wear safety helmets designed for this specific purpose and that meet the minimum requirements as prescribed by the Director of Competition. It is mandatory that all helmets have a Snell rating of 2000 or later. Helmets will be subject to inspection at each event by the Technical Committee. Only those considered in good condition and recent design and manufacture will be permitted.

2. A SFI approved head and neck restraint system is highly recommended.
3. Racing Uniforms: All Drivers must wear an approved one-piece racing uniform; complete with fire retardant head sock and/or skirt, socks, gloves, underwear, and shoes.
4. Arm Restraints – Arm restraints are mandatory and must be worn at all times during competition.
5. Steering Wheel Padding: The steering wheel hubs are highly recommended to be padded with resilient material of not less than  $\frac{3}{4}$ " thickness.
6. Roll Cage Nets – If a car is not equipped with a full containment seat, it is highly recommended that the car be fitted with roll cage nets on both the left and right sides of the roll cage for all events. All roll cage nets must conform to SFI Specification 37.1, which specifies a functional quick release opening mechanism. Caution should be used when positioning head restraining nets to be certain that the driver's head cannot get under the net in case of an accident. The bottom of the roll cage net should be as close to the top of the shoulder as possible.
7. Roll Cage Padding – All chassis protrusions, roll cage tubes and roll bars in close proximity to the driver's helmet is highly recommended to be padded with a securely attached high impact material conforming to SFI Specification 45.1. This includes any vertical anti-intrusion supports alongside the driver.
8. Fire Equipment: The Entrant or Crew Chief of each car should have in his pit a fully charged five-pound powder fire extinguisher, or its equivalent. A gauge or current inspection should be attached to each fire extinguisher.

F. Engines

1. Pushrod Type Engines
  - a. Four cylinder in-line, two valves per cylinder, water cooled, with intake and exhaust ports on the same side of the head using an aluminum block and approved non-cross flow aluminum "Fontana" cylinder head.

Maximum of 179 CID (2934cc)

Maximum RPM N/A

- b. Fontana (Rhino) sealed spec engine.

Maximum of 200 CID (3278cc)

Maximum RPM (factory set and sealed) 7800, must run MSD Ignition #6214.

- c. Four cylinder in-line, two valves per cylinder, water cooled utilizing an aluminum block and/or approved head.

Gaerte Block - Maximum of 177 CID (2900cc)

Mopar Block –Maximum of 171 CID (2803cc)

Toyota Engine – Maximum of 166 CID (2721cc)

Maximum RPM 8700

- d. All other push rod engines, using billet block, Non-Gaerte or Non-Mopar blocks maximum of 166 CID (2721cc)

Maximum RPM 8700

## 2. Single Overhead Camshaft Type Engines

- a. Four cylinder in-line, aluminum block and head, 2 valves per cylinder.

Esslinger ST, XT & RSI Only

Maximum of 166 CID (2721cc)

Esslinger BB7

Maximum of 161CID (2639cc)

Maximum RPM 10300

Mopar SR11 / SR11X

Maximum of 161 CID (2639cc)

Maximum RPM 10000



3. Double Overhead Camshaft Type Engines
  - a. Honda K-Series four cylinder in-line, water cooled, four valves per cylinder, must use Honda OEM cylinder block and cylinder head.

Maximum of 154.6 CID (2533.5cc)

Maximum RPM 9400 (probationary)

Maximum Stroke 99mm (3.98")
  - b. The stock production "Cosworth Vega" four cylinders, in-line, four valves per cylinder, utilizing the stock production block and head. Alteration of the basic design of the head or block is prohibited. Maximum 127 CID (2082 cc).
  - c. Ecotec four cylinders, in-line, four valves per cylinder. Maximum 146 CID (2400cc).
4. Complete engines and/or major components must be available in a reasonably sufficient supply to all competitors at comparative prices.
5. All engines must be normally aspirated, internal combustion, four cycle, reciprocating piston type, incorporating a maximum of six cylinders. Only one spark plug per cylinder will be allowed. Camshaft timing must be fixed. Any device used to alter camshaft timing during engine operation is prohibited. Sever penalties will be issued to the entrant and engine builder if such devices are found. EXCEPTION – Production block and head engines under 146 CID.
6. The preceding engine sized is maximum permitted. No clean up allowed.
7. Cylinder heads may not be billet. Any new design must be submitted to POWRi for approval.
8. No titanium crankshafts, connecting rods, and/or rod caps.
9. Performance Open Wheel Racing, Inc. (POWRi). Reserves the right to disallow any engine for competition, which in its judgment does not meet the spirit and intent of competitive racing, in regards to cost and/or performance. Any engines not covered by the preceding specifications must be submitted for approval prior to entering the competition.
10. Unapproved engines may be run under observation prior to amending the rulebook with the approval of the Director of Competition.
11. Ford Focus cars and engines are prohibited

12. Kenyon cars are prohibited
13. All chain driven cars and engines are prohibited

G. Miscellaneous

1. The use of in-car radio transmitting devices is prohibited.
2. Only one-way communication from POWRi Race Control will be allowed and is mandatory.
  - a. Channel #1 Frequency: 464.5500
3. The use of electronic logic processor to control any function of the race car is prohibited. (Note: This rule does not include electronic ignition and/or electronic tachometers).
4. MyChron data loggers have been deemed legal for gathering continuous data for the purpose of engine tuning performance but are limited to RPM, Pressure, Temperature, Voltage, O2 Sensors and GPS. The MyChron is one way communication only.
5. No Can ports, wheel/axle speed sensors or any other logic processing sensors will be allowed.
6. All data loggers are subject to inspection by the race director. Any other data collection system can utilize only one way communication and must have PRIOR approval by the race director. No switching devices are allowed in the cockpit area for the use of changing ECU programming and will be subject to inspection.